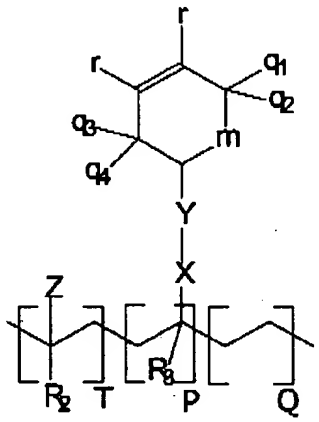
AMENDMENT TO THE CLAIMS

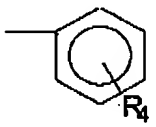
Claim 99. (Previously Presented) A compound, comprising a polymeric backbone, cyclic olefinic pendent groups and linking groups linking the olefinic pendent groups to the polymeric backbone,

and comprising the formula (II) as follows:

(II)



wherein P+T+ Q is 100 mol % of the compound; P, T, and Q are each greater than 0 mol % of the compound; Z is selected from the group consisting of an aryl group; $-(C=O)OR_1$; $-O(C=O)R_1$; and an alkyl aryl group:



where R_4 is selected from the group consisting of $-CH_3$, ethyl, and hydrogen; R_1 is selected from the group consisting of hydrogen, methyl, ethyl, $-C_3H_7$ and $-C_4H_9$; R_2 and R_3 are selected from the group consisting of hydrogen and methyl; X is selected from the group consisting of -O-, -NH-, -(C=O)O-, -(C=O)NH-, -(C=O)S-, -O(C=O)- and $-(CHR)_L-$; L is an integer in the range from 1 to 6; Y is $-(CHR)_n-$, where n is an integer in the range from 0 to 12, R being selected from the group consisting of hydrogen, methyl and ethyl; where q_1, q_2, q_3, q_4, and r are selected from the group consisting of hydrogen, methyl, and ethyl; and where m is $-(CH_2)_n-$

and where n is an integer in the range from 0 to 4; and wherein when r is hydrogen, at least one of q_1, q_2, q_3 and q_4 is hydrogen.

Claim 100. (Previously presented) The compound of claim 99, wherein the polymeric backbone comprises monomers selected from the group consisting of ethylene and styrene.

Claim 101. (Previously presented) The compound of claim 99, wherein the cyclic olefinic pendent groups are grafted onto the linking groups of the polymeric backbone by an esterification, transesterification, amidation or transamidation reaction.

Claim 102. (Previously presented) The compound of claim 101, wherein the esterification, transesterification, amidation or transamidation reaction is a solution reaction or a reactive extrusion.

Claim 103. (Previously presented) The compound of claim 101, wherein the esterification, transesterification, amidation or transamidation reaction is catalyzed by a catalyst selected from the group consisting of strong non-oxidizing acids, tertiary amines, Group I alkoxides, Group IVB alkoxides, and Group IVA organometallics.

Claim 104. (Previously presented) The compound of claim 103, wherein the catalyst is selected from a group consisting of toluene sulfonic acid, sodium methoxide, tetrabutyl titanate, tetraisopropyl titanate, tetra-n-propyl-titanate, tetraethyl titanate, 2-hydroxy-pyridine and dibutyltin dilaurate.

Claim 105. (Previously presented) The compound of claim 99, wherein the cyclic olefinic pendent groups are selected from the group consisting of cyclohexene-4-methylene radical, 1-methyl cyclohexene-4-methylene radical, 2-methyl cyclohexene-4-methylene radical, 5-methyl cyclohexene-4-methylene radical, 1,2-dimethyl cyclohexene-4-methylene radical, 1,5-dimethyl cyclohexene-4-methylene radical, 2,5-dimethyl cyclohexene-4-methylene radical, 1,2,5-trimethyl cyclohexene-4-methylene radical, cyclohexene-4-ethylene radical, 1-methyl cyclohexene-4-ethylene radical, 2-methyl cyclohexene-4-ethylene radical, 5-methyl

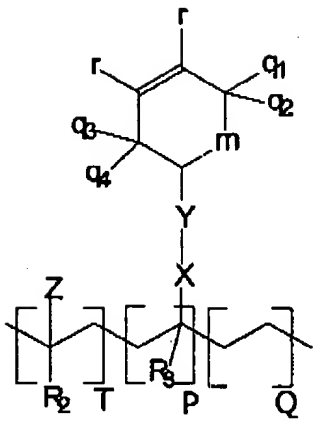
cyclohexene-4-ethylene radical, 1,2-dimethyl cyclohexene-4-ethylene radical, 1,5-dimethyl cyclohexene-4-ethylene radical, 2,5-dimethyl cyclohexene-4-ethylene radical, 1,2,5-trimethyl cyclohexene-4-ethylene radical, cyclohexene-4-propylene radical, 1-methyl cyclohexene-4-propylene radical, 2-methyl cyclohexene-4-propylene radical, 5-methyl cyclohexene-4-propylene radical, 1,2-dimethyl cyclohexene-4-propylene radical, 1,5-dimethyl cyclohexene-4-propylene radical, 2,5-dimethyl cyclohexene-4-propylene radical, 1,2,5-trimethyl cyclohexene-4-propylene radical, cyclopentene-4-methylene radical, 1-methyl cyclopentene-4-methylene radical, 3-methyl cyclopentene-4-methylene radical, 1,2-dimethyl cyclopentene-4-methylene radical, 3,5-dimethyl cyclopentene-4-methylene radical, 1,3-dimethyl cyclopentene-4-methylene radical, 2,3-dimethyl cyclopentene-4-methylene radical, 1,2,3-trimethyl cyclopentene-4-methylene radical, 1,2,3,5-tetramethyl cyclopentene-4-methylene radical, cyclopentene-4-ethylene radical, 1-methyl cyclopentene-4-ethylene radical, 3-methyl cyclopentene-4-ethylene radical, 1,2-dimethyl cyclopentene-4-ethylene radical, 3,5-dimethyl cyclopentene-4-ethylene radical, 1,3-dimethyl cyclopentene-4-ethylene radical, 2,3-dimethyl cyclopentene-4-ethylene radical, 1,2,3-trimethyl cyclopentene-4-ethylene radical, 1,2,3,5-tetramethyl cyclopentene-4-ethylene radical, cyclopentene-4-propylene radical, 1-methyl cyclopentene-4-propylene radical, 3-methyl cyclopentene-4-propylene radical, 1,2-dimethyl cyclopentene-4-propylene radical, 3,5-dimethyl cyclopentene-4-propylene radical, 1,3-dimethyl cyclopentene-4-propylene radical, 2,3-dimethyl cyclopentene-4-propylene radical, 1,2,3-trimethyl cyclopentene-4-propylene radical, and 1,2,3,5-tetramethyl cyclopentene-4-propylene radical.

Claim 106. (Previously presented) The compound of claim 99, wherein the compound is an ethylene/methyl acrylate/cyclohexenyl methyl acrylate terpolymer.

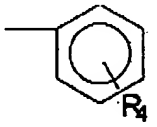
Claim 107. (Previously Presented) An oxygen scavenging composition, comprising a compound comprising a polymeric backbone, cyclic olefinic pendent groups, and linking groups linking the olefinic pendent groups to the polymeric backbone, and a transition metal catalyst;

wherein the transition metal catalyst is a metal salt, and the compound comprises the formula (II) as follows:

(II)



wherein P+T+ Q is 100 mol % of the compound; P, T, and Q are each greater than 0 mol % of the compound; Z is selected from the group consisting of an aryl group; -(C=O)OR_1; -O(C=O)R_1; and an alkyl aryl group:



where R_4 is selected from the group consisting of $-CH_3$, ethyl, and hydrogen; R_1 is selected from the group consisting of hydrogen, methyl, ethyl, $-C_3H_7$ and $-C_4H_9$; R_2 and R_3 are selected from the group consisting of hydrogen and methyl; X is selected from the group consisting of -O-, -NH-, -(C=O)O-, -(C=O)NH-, -(C=O)S-, -O(C=O)- and $-(CHR)_L-$; L is an integer in the range from 1 to 6; Y is $-(CHR)_n-$, where n is an integer in the range from 0 to 12, R being selected from the group consisting of hydrogen, methyl and ethyl; where q_1, q_2, q_3, q_4, and r are selected from the group consisting of hydrogen, methyl, and ethyl; and where m is $-(CH_2)_n-$ and where n is an integer in the range from 0 to 4; and wherein when r is hydrogen, at least one of q_1, q_2, q_3 and q_4 is hydrogen.

Claim 108. (Previously presented) A composition according to claim 107, wherein the polymeric backbone is ethylenic and the linking groups are selected from the group consisting of:

-O-(CHR)$_n$-; -(C=O)-O-(CHR)$_n$-; -NH-(CHR)$_n$-; -O-(C=O)-(CHR)$_n$-;
-(C=O)-NH-(-CHR)$_n$-; and -(C=O)-O-CHOH-CH_2-O-;

wherein R is hydrogen or an alkyl group selected from the group consisting of methyl, ethyl, propyl and butyl groups and where n is an integer in the range from 1 to 12.

Claim 109. (Previously presented) The composition of claim 107, wherein the polymeric backbone comprises monomers selected from the group consisting of ethylene and styrene.

Claim 110. (Previously presented) The composition of claim 107, wherein the cyclic olefinic pendent groups are grafted onto the linking groups of the polymeric backbone by a esterification, transesterification, amidation or transamidation reaction.

Claim 111. (Previously presented) The composition of claim 110, wherein the esterification, transesterification, amidation or transamidation reaction is a solution reaction or a reactive extrusion.

Claim 112. (Previously presented) The composition of claim 110, wherein the esterification, transesterification, amidation or transamidation reaction is catalyzed by a catalyst selected from the group consisting of strong non-oxidizing acids, tertiary amines, Group I alkoxides, Group IVB alkoxides, and Group IVA organomctallics.

Claim 113. (Previously presented) The composition of claim 112, wherein the catalyst is selected from a group consisting of toluene sulfonic acid, sodium methoxide, tetrabutyl titanate, tetraisopropyl titanate, tetra-n-propyl-titanate, tetraethyl titanate, 2-hydroxy-pyridine and dibutyltin dilaurate.

Claim 114. (Previously presented) The composition of claim 107, wherein the cyclic olefinic pendent groups are selected from the group consisting of cyclohexene-4-methylene radical, 1-methyl cyclohexene-4-methylene radical, 2-methyl cyclohexene-4-methylene radical, 5-methyl cyclohexene-4-methylene radical, 1,2-dimethyl cyclohexene-4-methylene radical, 1,5-

dimethyl cyclohexene-4-methylene radical, 2,5-dimethyl cyclohexene-4-methylene radical, 1,2,5-trimethyl cyclohexene-4-methylene radical, cyclohexene-4-ethylene radical, 1-methyl cyclohexene-4-ethylene radical, 2-methyl cyclohexene-4-ethylene radical, 5-methyl cyclohexene-4-ethylene radical, 1,2-dimethyl cyclohexene-4-ethylene radical, 1,5-dimethyl cyclohexene-4-ethylene radical, 2,5-dimethyl cyclohexene-4-ethylene radical, 1,2,5-trimethyl cyclohexene-4-ethylene radical, cyclohexene-4-propylene radical, 1-methyl cyclohexene-4-propylene radical, 2-methyl cyclohexene-4-propylene radical, 5-methyl cyclohexene-4-propylene radical, 1,2-dimethyl cyclohexene-4-propylene radical, 1,5-dimethyl cyclohexene-4-propylene radical, 2,5-dimethyl cyclohexene-4-propylene radical, 1,2,5-trimethyl cyclohexene-4-propylene radical, cyclopentene-4-methylene radical, 1-methyl cyclopentene-4-methylene radical, 3-methyl cyclopentene-4-methylene radical, 1,2-dimethyl cyclopentene-4-methylene radical, 3,5-dimethyl cyclopentene-4-methylene radical, 1,3-dimethyl cyclopentene-4-methylene radical, 2,3-dimethyl cyclopentene-4-methylene radical, 1,2,3-trimethyl cyclopentene-4-methylene radical, 1,2,3,5-tetramethyl cyclopentene-4-methylene radical, cyclopentene-4-ethylene radical, 1-methyl cyclopentene-4-ethylene radical, 3-methyl cyclopentene-4-ethylene radical, 1,2-dimethyl cyclopentene-4-ethylene radical, 3,5-dimethyl cyclopentene-4-ethylene radical, 1,3-dimethyl cyclopentene-4-ethylene radical, 2,3-dimethyl cyclopentene-4-ethylene radical, 1,2,3-trimethyl cyclopentene-4-ethylene radical, 1,2,3,5-tetramethyl cyclopentene-4-ethylene radical, cyclopentene-4-propylene radical, 1-methyl cyclopentene-4-propylene radical, 3-methyl cyclopentene-4-propylene radical, 1,2-dimethyl cyclopentene-4-propylene radical, 3,5-dimethyl cyclopentene-4-propylene radical, 1,3-dimethyl cyclopentene-4-propylene radical, 2,3-dimethyl cyclopentene-4-propylene radical, 1,2,3-trimethyl cyclopentene-4-propylene radical, and 1,2,3,5-tetramethyl cyclopentene-4-propylene radical.

Claim 115. (Previously presented) The composition of claim 107, wherein the compound is an ethylene/methyl acrylate/cyclohexenyl methyl acrylate terpolymer.

Claim 116. (Previously presented) The composition of claim 107, wherein odor and taste characteristics of products packaged with material comprised of the composition are not adulterated as a result of oxidation of the composition.

Claim 117. (Previously presented) The composition of claim 107, wherein there is no significant fragmentation of the olefinic pendent groups and linking groups from the polymeric backbone as a result of oxidation of the composition.

Claim 118. (Previously presented) The composition of claim 107, wherein the metal in the metal salt is cobalt.

Claim 119. (Previously presented) The composition according to claim 118, wherein the metal salt is selected from the group consisting of cobalt neodecanoate, cobalt 2-ethylhexanoate, cobalt oleate and cobalt stearate.

Claim 120. (Previously presented) The composition of claim 107, further comprising at least one triggering material to enhance initiation of oxygen scavenging.

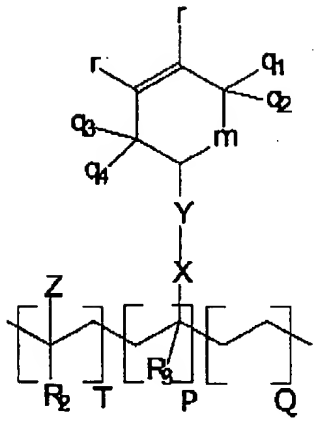
Claim 121. (Previously presented) The composition of claim 119, wherein the triggering material is a photo initiator.

Claim 122. (Previously Presented) An article of manufacture suitable as a container, the container inhibiting oxidation of contents of the container by removing oxygen from the container and by inhibiting ingress of oxygen into the container from outside the container,

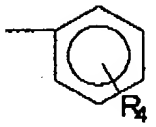
wherein the article comprises an oxygen scavenging composition which comprises:

(a) a compound comprising a polymeric backbone, cyclic olefinic pendant groups, and linking groups linking the olefinic pendant groups to the backbone, and comprising the formula (II) as follows:

(II)



wherein P+T+ Q is 100 mol % of the compound; P, T, and Q are each greater than 0 mol % of the compound; Z is selected from the group consisting of an aryl group; -(C=O)OR_1; -O(C=O)R_1; and an alkyl aryl group:



where R_4 is selected from the group consisting of $-CH_3$, ethyl, and hydrogen; R_1 is selected from the group consisting of hydrogen, methyl, ethyl, $-C_3H_7$ and $-C_4H_9$; R_2 and R_3 are selected from the group consisting of hydrogen and methyl; X is selected from the group consisting of -O-, -NH-, -(C=O)O-, -(C=O)NH-, -(C=O)S-, -O(C=O)- and $-(CHR)_L-$; L is an integer in the range from 1 to 6; Y is $-(CHR)_n-$, where n is an integer in the range from 0 to 12, R being selected from the group consisting of hydrogen, methyl and ethyl; where q_1, q_2, q_3, q_4, and r are selected from the group consisting of hydrogen, methyl, and ethyl; and where m is $-(CH_2)_n-$ and where n is an integer in the range from 0 to 4; and wherein when r is hydrogen, at least one of q_1, q_2, q_3 and q_4 is hydrogen; and

(b) a transition metal catalyst.

Claim 123. (Previously presented) The article of manufacture of claim 122, wherein the polymeric backbone is ethylenic and the linking groups are selected from the group consisting of:

$-O-(CHR)_n-$; $-(C=O)-O-(CHR)_n-$; $-NH-(CHR)_n-$; $-O-(C=O)-(CHR)_n-$;

$-(C=O)-NH-(-CHR)_n-$; and $-(C=O)-O-CHOH-CH_2-O-$;

wherein R is hydrogen or an alkyl group selected from the group consisting of methyl, ethyl, propyl and butyl groups and where n is an integer in the range from 1 to 12.

Claim 124. (Previously presented) The article of manufacture of claim 122, wherein the polymeric backbone comprises monomers selected from the group consisting of ethylene and styrene.

Claim 125. (Previously presented) The article of manufacture of claim 122, wherein the cyclic olefinic pendent groups are grafted onto the linking groups of the polymeric backbone by a esterification, transesterification, amidation or transamidation reaction.

Claim 126. (Previously presented) The article of manufacture of claim 125, wherein the esterification, transesterification, amidation or transamidation reaction is a solution reaction or a reactive extrusion.

Claim 127. (Previously presented) The article of manufacture of claim 125, wherein the esterification, transesterification, amidation or transamidation reaction is catalyzed by a catalyst selected from the group consisting of strong non-oxidizing acids, tertiary amines, Group I alkoxides, Group IVB alkoxides, and Group IVA organometallics.

Claim 128. (Previously presented) The article of manufacture of claim 127, wherein the catalyst is selected from the group consisting of toluene sulfonic acid, sodium methoxide, tetrabutyl titanate, tetraisopropyl titanate, tetra-n-propyl-titanate, tetraethyl titanate, 2-hydroxy-pyridine and dibutyltin dilaurate.

Claim 129. (Previously presented) The article of manufacture of claim 122, wherein the cyclic olefinic pendent groups are selected from the group consisting of cyclohexene-4-methylene radical, 1-methyl cyclohexene-4-methylene radical, 2-methyl cyclohexene-4-methylene radical, 5-methyl cyclohexene-4-methylene radical, 1,2-dimethyl cyclohexene-4-methylene radical, 1,5-dimethyl cyclohexene-4-methylene radical, 2,5-dimethyl cyclohexene-4-methylene radical, 1,2,5-trimethyl cyclohexene-4-methylene radical, cyclohexene-4-ethylene radical, 1-methyl cyclohexene-4-ethylene radical, 2-methyl cyclohexene-4-ethylene radical, 5-methyl cyclohexene-4-ethylene radical, 1,2-dimethyl cyclohexene-4-ethylene radical, 1,5-dimethyl cyclohexene-4-ethylene radical, 2,5-dimethyl cyclohexene-4-ethylene radical, 1,2,5-trimethyl cyclohexene-4-ethylene radical, cyclohexene-4-propylene radical, 1-methyl cyclohexene-4-propylene radical, 2-methyl cyclohexene-4-propylene radical, 5-methyl cyclohexene-4-propylene radical, 1,2-dimethyl cyclohexene-4-propylene radical, 1,5-dimethyl cyclohexene-4-propylene radical, 2,5-dimethyl cyclohexene-4-propylene radical, 1,2,5-trimethyl cyclohexene-4-propylene radical, cyclopentene-4-methylene radical, 1-methyl cyclopentene-4-methylene radical, 3-methyl cyclopentene-4-methylene radical, 1,2-dimethyl cyclopentene-4-methylene radical, 3,5-dimethyl cyclopentene-4-methylene radical, 1,3-dimethyl cyclopentene-4-methylene radical, 2,3-dimethyl cyclopentene-4-methylene radical, 1,2,3-trimethyl cyclopentene-4-methylene radical, 1,2,3,5-tetramethyl cyclopentene-4-methylene radical, cyclopentene-4-ethylene radical, 1-methyl cyclopentene-4-ethylene radical, 3-methyl cyclopentene-4-ethylene radical, 1,2-dimethyl cyclopentene-4-ethylene radical, 3,5-dimethyl cyclopentene-4-ethylene radical, 1,3-dimethyl cyclopentene-4-ethylene radical, 2,3-dimethyl cyclopentene-4-ethylene radical, 1,2,3-trimethyl cyclopentene-4-ethylene radical, 1,2,3,5-tetramethyl cyclopentene-4-ethylene radical, cyclopentene-4-propylene radical, 1-methyl cyclopentene-4-propylene radical, 3-methyl cyclopentene-4-propylene radical, 1,2-dimethyl cyclopentene-4-propylene radical, 3,5-dimethyl cyclopentene-4-propylene radical, 1,3-dimethyl cyclopentene-4-propylene radical, 2,3-dimethyl cyclopentene-4-propylene radical, 1,2,3-trimethyl cyclopentene-4-propylene radical, and 1,2,3,5-tetramethyl cyclopentene-4-propylene radical.

Claim 130. (Previously presented) The article of manufacture of claim 122, wherein the compound is an ethylene/methyl acrylate/cyclohexenyl methyl acrylate terpolymer.

Claim 131. (Previously presented) The article of manufacture according to claim 122, wherein the transition metal catalyst is a metal salt.

Claim 132. (Previously presented) The article of manufacture according to claim 131, wherein the metal in the metal salt is cobalt.

Claim 133. (Previously presented) The article of manufacture of according to claim 132, wherein the metal salt is selected from the group consisting of cobalt neodecanoate, cobalt 2-ethylhexanoate, cobalt oleate and cobalt stearate.

Claim 134. (Previously presented) The article of manufacture of claim 122, further comprising at least one triggering material to enhance initiation of oxygen scavenging.

Claim 135. (Previously presented) The article of manufacture of claim 134, wherein the triggering material is a photoinitiator.

Claim 136. (Previously presented) The article of manufacture of claim 122, wherein odor and taste characteristics of products packaged with material comprised of the composition are not adulterated as a result of oxidation of the composition.

Claim 137. (Previously presented) The article of manufacture of claim 122, wherein there is no significant fragmentation of the olefinic pendent groups and linking groups from the polymeric backbone as a result of oxidation of the composition.

Claim 138. (Previously presented) The article of manufacture of claim 122 wherein the article is a package.

Claim 139. (Previously presented) The article of manufacture of claim 138, wherein the package comprises a flexible film having a thickness of at most 10 mil or a flexible sheet having a thickness of at least 10 mil.

Claim 140. (Canceled)

Claim 141. (Previously presented) The article of manufacture of claim 138, wherein the article is a package with a food product located within the package.

Claim 142. (Previously presented) The article of manufacture of claim 138, wherein the article is a package for packaging a cosmetic, chemical, electronic device, pesticide or a pharmaceutical composition.

Claim 143. (Previously presented) A multi-layer film comprising the article of manufacture according to claim 122, and at least one additional functional layer.

Claim 144. (Previously presented) The multi-layer film according to claim 143, wherein at least one additional layer is selected from among oxygen barrier layers, polymeric selective barrier layers, structural layers and heat seal layers.

Claim 145. (Previously presented) The multi-layer film according to claim 143, wherein the at least one additional layer is an oxygen barrier layer.

Claim 146. (Previously presented) The multi-layer film according to claim 145, further comprising at least one polymeric selective barrier layer.

Claim 147. (Previously presented) The multi-layer film according to claim 145, further comprising at least one heat seal layer.

Claim 148. (Previously presented) The multi-layer film according to claim 145, further comprising at least one structural layer.

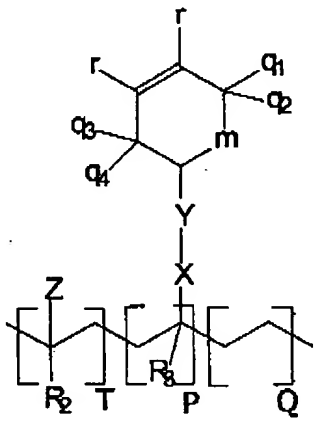
Claim 149. (Previously presented) The article of claim 122, wherein the article is a rigid container, sealing gasket, patch, container closure device, bottle cap, bottle cap insert or molded or thermoformed shape.

Claim 150. (Previously presented) The article of claim 149, wherein the molded or thermoformed shape is a bottle or tray.

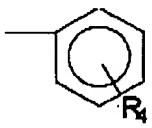
Claim 151. (Previously Presented) A layer suitable for scavenging oxygen, comprising:

(a) a compound comprising a polymeric backbone, cyclic olefinic pendent groups and linking groups linking the olefinic pendent groups to the polymeric backbone, and comprising the formula (II) as follows:

(II)



wherein P+T+ Q is 100 mol % of the compound; P, T, and Q are each greater than 0 mol % of the compound; Z is selected from the group consisting of an aryl group; -(C=O)OR_1; -O(C=O)R_1; and an alkyl aryl group:



where R_4 is selected from the group consisting of $-CH_3$, ethyl, and hydrogen; R_1 is selected from the group consisting of hydrogen, methyl, ethyl, $-C_3H_7$ and $-C_4H_9$; R_2 and R_3 are selected from the group consisting of hydrogen and methyl; X is selected from the group

consisting of -O-, -NH-, -(C=O)O-, -(C=O)NH-, -(C=O)S-, -O(C=O)- and -$(CHR)_L$-; L is an integer in the range from 1 to 6; Y is -$(CHR)_n$-, where n is an integer in the range from 0 to 12, R being selected from the group consisting of hydrogen, methyl and ethyl; where q_1, q_2, q_3, q_4, and r are selected from the group consisting of hydrogen, methyl, and ethyl; and where m is –$(CH_2)_n$- and where n is an integer in the range from 0 to 4; and wherein when r is hydrogen, at least one of q_1, q_2, q_3 and q_4 is hydrogen; and

(b) a transition metal catalyst.

Claim 152. (Previously presented) The layer of claim 151, wherein odor and taste characteristics of products packaged with material comprised of the layer are not adulterated as a result of oxidation of the layer.

Claim 153. (Previously presented) The layer of claim 151, wherein there is no significant fragmentation of the olefinic pendent groups and linking groups from the polymeric backbone as a result of oxidation of the layer.

Claim 154. (Previously presented) A layer according to claim 151, wherein the transition metal catalyst is a metal salt.

Claim 155. (Previously presented) A layer according to claim 154, wherein the transition metal in the metal salt is cobalt.

Claim 156. (Previously presented) A layer according to claim 154, wherein the metal salt selected from the group consisting of cobalt neodecanoate, cobalt 2-ethylhexanoate, cobalt oleate and cobalt stearate.

Claim 157. (Previously presented) A layer according to claim 151, wherein said layer in addition comprises polymeric diluent.

Claim 158. (Previously presented) A layer according to claim 157, wherein said diluent is a thermoplastic polymer.

Claim 159. (Previously presented) A layer according to claim 151, wherein said layer is adjacent to one or more additional layers.

Claim 160. (Previously presented) A layer according to claim 159, wherein at least one additional layer is an oxygen barrier.

Claim 161. (Previously presented) A layer according to claim 160, wherein said oxygen barrier comprises at least one material selected from the group consisting of poly(ethylene-vinyl alcohol), polyacrylonitrile, poly(vinyl chloride), polyamides, poly(vinylidene dichloride), poly(ethylene terephthalate), silica, metal foil and metalized polymeric films.

Claim 162. (Previously presented) A layer according to claim 159, wherein one or more of said additional layer or layers is coextruded with said layer.

Claim 163. (Previously presented) A layer according to claim 159, wherein one or more of said additional layer or layers is laminated onto said layer.

Claim 164. (Previously presented) A layer according to claim 159, wherein one or more of said additional layer or layers is coated onto said layer.

Claim 165. (Previously presented) A layer according to claim 159, wherein said layer is flexible.

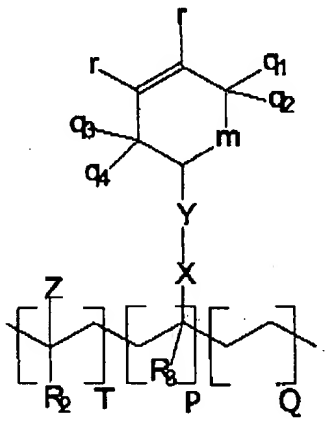
Claim 166. (Previously presented) A layer according to claim 159, wherein said layer is transparent.

Claim 167. (Previously presented) An article for packaging wherein the article comprises a layer according to claim 151.

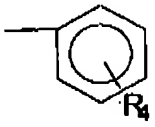
Claim 168. (Previously Presented) A process of making a polymer material by a process comprising transesterification of an ethylene copolymer with an alcohol comprising a cyclic olefinic group, wherein the polymer material that is produced comprises a polymer backbone, cyclic olefinic pendant groups, and linking groups linking the backbone with the pendant groups;

and comprising the formula (II) as follows:

(II)



wherein P+T+ Q is 100 mol % of the compound; P, T, and Q are each greater than 0 mol % of the compound; Z is selected from the group consisting of an aryl group; -(C=O)OR_1; -O(C=O)R_1; and an alkyl aryl group:



where R_4 is selected from the group consisting of $-CH_3$, ethyl, and hydrogen; R_1 is selected from the group consisting of hydrogen, methyl, ethyl, $-C_3H_7$ and $-C_4H_9$; R_2 and R_3 are selected from the group consisting of hydrogen and methyl; X is selected from the group consisting of -O-, -NH-, -(C=O)O-, -(C=O)NH-, -(C=O)S-, -O(C=O)- and $-(CHR)_L-$; L is an integer in the range from 1 to 6; Y is $-(CHR)_n-$, where n is an integer in the range from 0 to 12, R being selected from

the group consisting of hydrogen, methyl and ethyl; where q_1, q_2, q_3, q_4, and r are selected from the group consisting of hydrogen, methyl, and ethyl; and where m is $-(CH_2)_n-$ and where n is an integer in the range from 0 to 4; and wherein when r is hydrogen, at least one of q_1, q_2, q_3 and q_4 is hydrogen.

Claim 169. (Previously presented) The process of claim 168, wherein the process comprises the steps of:

(a) selecting at least one polymer from the group consisting of ethylene/maleic anhydride, ethylene/acrylic acid, ethylene/methacrylic acid, ethylene/methyl acrylate, ethylene/ethyl acrylate, and ethylene/butyl acrylate, and at least one transesterifying compound selected from the group consisting of cyclohexene-4-methanol, 1-methyl cyclohexene-4-methanol, 2-methyl cyclohexene-4-methanol, 5-methyl cyclohexene-4-methanol, 1,2-dimethyl cyclohexene-4-methanol, 1,5-dimethyl cyclohexene-4-methanol, 2,5-dimethyl cyclohexene-4-methanol, 1,2,5-trimethyl cyclohexene-4-methanol, cyclohexene-4-ethanol, 1-methyl cyclohexene-4-ethanol, 2-methyl cyclohexene-4-ethanol, 5-methyl cyclohexene-4-ethanol, 1,2-dimethyl cyclohexene-4-ethanol, 1,5-dimethyl cyclohexene-4-ethanol, 2,5-dimethyl cyclohexene-4-ethanol, 1,2,5-trimethyl cyclohexene-4-ethanol, cyclohexene-4-propanol, 1-methyl cyclohexene-4-propanol, 2-methyl cyclohexene-4-propanol, 5-methyl cyclohexene-4-propanol, 1,2-dimethyl cyclohexene-4-propanol, 1,5-dimethyl cyclohexene-4-propanol, 2,5-dimethyl cyclohexene-4-propanol, 1,2,5-trimethyl cyclohexene-4-propanol, cyclopentene-4-methanol, 1-methyl cyclopentene-4-methanol, 3-methyl cyclopentene-4-methanol, 1,2-dimethyl cyclopentene-4-methanol, 3,5-dimethyl cyclopentene-4-methanol, 1,3-dimethyl cyclopentene-4-methanol, 2,3-dimethyl cyclopentene-4-methanol, 1,2,3-trimethyl cyclopentene-4-methanol, 1,2,3,5-tetramethyl cyclopentene-4-methanol, cyclopentene-4-ethanol, 1-methyl cyclopentene-4-ethanol, 3-methyl cyclopentene-4-ethanol, 1,2-dimethyl cyclopentene-4-ethanol, 3,5-dimethyl cyclopentene-4-ethanol, 1,3-dimethyl cyclopentene-4-ethanol, 2,3-dimethyl cyclopentene-4-ethanol, 1,2,3-trimethyl cyclopentene-4-ethanol, 1,2,3,5-tetramethyl cyclopentene-4-ethanol, cyclopentene-4-propanol, 1-methyl

cyclopentene-4-propanol, 3-methyl cyclopentene-4-propanol, 1,2-dimethyl cyclopentene-4-propanol, 3,5-dimethyl cyclopentene-4-propanol, 1,3-dimethyl cyclopentene-4-propanol, 2,3-dimethyl cyclopentene-4-propanol, 1,2,3-trimethyl cyclopentene-4-propanol, and 1,2,3,5-tetramethyl cyclopentene-4-propanol, and combining the at least one polymer and the at least one transesterifying compound;

(b) heating the polymer and transesterifying compound selected in (a) to form a polymer melt;

(c) processing the melt in an extruder under transesterification conditions with transesterification catalysts and antioxidants protecting the melt from oxidation during extrusion, so that the polymer melt undergoes exchange of alkyl groups of polymeric esters with cyclic olefin pendent groups; and

(d) removing volatile organic products and by-products from the melt.

Claim 170. (Previously presented) The process of claim 169, wherein the polymeric backbone is ethylenic and the linking groups are selected from the group consisting of:

$-O-(CHR)_n-$; $-(C=O)-O-(CHR)_n-$; $-NH-(CHR)_n-$;
$-O-(C=O)-(CHR)_n-$; $-(C=O)-NH-(-CHR)_n-$; and $-(C=O)-O-CHOH-CH_2-O-$;

where R is hydrogen or an alkyl group selected from the group consisting of methyl, ethyl, propyl and butyl groups and where n is an integer in the range from 1 to 12.

Claim 171. (Previously presented) The process of claim 169, wherein the polymeric backbone is ethylenic backbone and the linking group is:

$-(C=O)-NH-(CHR)_n$

where R is hydrogen or an alkyl group selected from the group consisting of methyl, ethyl, propyl and butyl groups and where n is an integer in the range from 1 to 12.

Claim 172. (Previously presented) The process of claim 168, further comprising adding to the polymer material a transition metal catalyst.

Claim 173. (Previously presented) The process of claim 172, wherein the transition metal catalyst is a metal salt.

Claim 174. (Previously presented) The process of claim 173, wherein the metal in the metal salt is cobalt.

Claim 175. (Previously presented) The process of claim 173, wherein the metal salt is selected from the group consisting of cobalt neodecanoate, cobalt 2-ethylhexanoate, cobalt oleate and cobalt stearate.

Claim 176. (Previously presented) The process of claim 168, further comprising adding to the polymer material at least one triggering material to enhance initiation of oxygen scavenging.

Claim 177. (Previously presented) The process of claim 176, wherein the triggering material is a photoinitiator.

Claim 178. (Previously presented) The process of claim 168, wherein the reaction is a solution reaction or a reactive extrusion.

Claim 179. (Previously presented) The process of claim 168, wherein the transesterification reaction is catalyzed by a catalyst selected from the group consisting of strong non-oxidizing acids, tertiary amines, Group I alkoxides, Group IVB alkoxides, Group IVA organometallics.

Claim 180. (Previously presented) The process of claim 179, wherein the catalyst is selected from the group consisting of toluene sulfonic acid, sodium methoxide, tetrabutyl titanate, tetraisopropyl titanate, tetra-n-propyl-titanate, tetraethyl titanate, 2-hydroxy-pyridine and dibutyltin dilaurate.

Claim 181. (Canceled)

Claim 182. (Previously presented) The process of claim 168, wherein the cyclic olefinic pendent groups are selected from the group consisting of cyclohexene-4-methylene radical, 1-methyl cyclohexene-4-methylene radical, 2-methyl cyclohexene-4-methylene radical, 5-methyl cyclohexene-4-methylene radical, 1,2-dimethyl cyclohexene-4-methylene radical, 1,5-dimethyl cyclohexene-4-methylene radical, 2,5-dimethyl cyclohexene-4-methylene radical, 1,2,5-trimethyl cyclohexene-4-methylene radical, cyclohexene-4-ethylene radical, 1-methyl cyclohexene-4-ethylene radical, 2-methyl cyclohexene-4-ethylene radical, 5-methyl cyclohexene-4-ethylene radical, 1,2-dimethyl cyclohexene-4-ethylene radical, 1,5-dimethyl cyclohexene-4-ethylene radical, 2,5-dimethyl cyclohexene-4-ethylene radical, 1,2,5-trimethyl cyclohexene-4-ethylene radical, cyclohexene-4-propylene radical, 1-methyl cyclohexene-4-propylene radical, 2-methyl cyclohexene-4-propylene radical, 5-methyl cyclohexene-4-propylene radical, 1,2-dimethyl cyclohexene-4-propylene radical, 1,5-dimethyl cyclohexene-4-propylene radical, 2,5-dimethyl cyclohexene-4-propylene radical, 1,2,5-trimethyl cyclohexene-4-propylene radical, cyclopentene-4-methylene radical, 1-methyl cyclopentene-4-methylene radical, 3-methyl cyclopentene-4-methylene radical, 1,2-dimethyl cyclopentene-4-methylene radical, 3,5-dimethyl cyclopentene-4-methylene radical, 1,3-dimethyl cyclopentene-4-methylene radical, 2,3-dimethyl cyclopentene-4-methylene radical, 1,2,3-trimethyl cyclopentene-4-methylene radical, 1,2,3,5-tetramethyl cyclopentene-4-methylene radical, cyclopentene-4-ethylene radical, 1-methyl cyclopentene-4-ethylene radical, 3-methyl cyclopentene-4-ethylene radical, 1,2-dimethyl cyclopentene-4-ethylene radical, 3,5-dimethyl cyclopentene-4-ethylene radical, 1,3-dimethyl cyclopentene-4-ethylene radical, 2,3-dimethyl cyclopentene-4-ethylene radical, 1,2,3-trimethyl cyclopentene-4-ethylene radical, 1,2,3,5-tetramethyl cyclopentene-4-ethylene radical, cyclopentene-4-propylene radical, 1-methyl cyclopentene-4-propylene radical, 3-methyl cyclopentene-4-propylene radical, 1,2-dimethyl cyclopentene-4-propylene radical, 3,5-dimethyl cyclopentene-4-propylene radical, 1,3-dimethyl cyclopentene-4-propylene radical, 2,3-dimethyl cyclopentene-4-propylene radical, 1,2,3-trimethyl cyclopentene-4-propylene radical, and 1,2,3,5-tetramethyl cyclopentene-4-propylene radical.

Claim 183. (Previously presented) The process of claim 182, wherein the polymer is a ethylene/methyl acrylate/cyclohexenyl methyl acrylate terpolymer.

Claim 184. (Canceled)

Claim 185. (Canceled)

Claim 186. (Previously presented) A process for making a terpolymer, comprising transesterification of ethylene methyl acrylate copolymer with an alcohol comprising a cyclohexene moiety.

Claim 187. (Previously presented) The process of claim 186, wherein the alcohol is 3-cyclohexene-1-methanol.

Claim 188. (Previously presented) The process of claim 186, wherein the transesterification occurs in a reactive extrusion process.

Claim 189. (Previously presented) A terpolymer prepared by transesterification of ethylene methyl acrylate copolymer with an alcohol comprising a cyclohexene moiety.

Claim 190. (Previously presented) The terpolymer of claim 189, wherein the alcohol is 3-cyclohexene-1-methanol.

Claim 191. (Previously presented) A composition comprising poly(ethylene/methyl acrylate/cyclohexene-methylacrylate) and an amount of a transition metal catalyst effective to catalyze oxygen scavenging.

Claim 192. (Previously presented) An oxygen scavenging layer comprising poly(ethylene/methylacrylate/ cyclohexene-methylacrylate) and an amount of a transition metal catalyst effective to catalyze oxygen scavenging.

Claim 193. (Previously presented) A film comprising poly(ethylene/methyl acrylate/cyclohexene-methylacrylate) and an amount of a transition metal catalyst effective to catalyze oxygen scavenging.

Claim 194. (Previously presented) A packaging article comprising poly(ethylene/methyl acrylate/cyclohexene-methylacrylate) and an amount of a transition metal catalyst effective to catalyze oxygen scavenging.